

Water Resource Advisory Commission

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Implications for Lake Okeechobee from phosphorus recommendations in the model “Urban Turf Rule”

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Florida Consumer Fertilizer Task Force: Final Report

- The Final Report's "Model Ordinance" (App. 4) had many good components
- The Model Ordinance had a "default" P recommendation of 0.25 pounds P₂O₅ per application per 1000 square feet (in 2 annual applications)
- This talk is about the default P recommendation



“Science” of recommendation

- Based partly on IFAS research that optimized P for grasses
- The IFAS research did NOT measure resulting water quality (that study is underway)
- Thus, there is no direct relationship between the turf recommendations and meeting water quality goals

“9.5 pounds of P per acre”

- **0.5 pounds per 1000 square feet translates to 21.78 pounds of P2O5/acre each year**
- **21.78 pounds is 9.5 pounds of pure P per acre**
- **Is this compatible with Lake Okeechobee’s P TMDL?**

“95 times higher than Okeechobee’s TMDL goals”

- Attaining Lake O’s 105 metric ton P goal from the upstream watershed requires an average of 0.1 pound/acre
- Therefore, the 9.5 pound per acre can be seen as “95 times” too high
- But, urban areas are not all turf, so “95 times” is too simplistic
- I looked at acres of urban development in the Kissimmee Chain of Lakes to estimate net import possibilities

Sources

- Mock-Roos & Associates. 2003. Lake Istokpoga and Upper Chain of Lakes phosphorus source control: Task 4 final report. South Florida Water Management District Contract No. C-13413. West Palm Beach.
- Harper, H. H., and Baker, D. M. 2007. Evaluation of current stormwater design criteria with the State of Florida. Final Report. Florida Department of Environmental Protection, FDEP Contract No. S0108. Tallahassee.

If half the pervious area received recommended rate,
about 137 metric tons would be imported annually

| Land Use | Mock Roos definition | Area (acres) | Harper similar category | Percent pervious area | Estimated phosphorus application (pounds) |
|---------------------------------|-----------------------------|----------------------|--------------------------------|------------------------------|--|
| Residential Low Density | 1 unit/5 acres | 37,350 | Low density Residential | 67% | 118,866 |
| Residential med. Density | 2 units/acre | 45,660 | Single family | 67% | 145,313 |
| Residential high density | 5 units/acre | 20,560 | Multi family | 33% | 32,228 |
| Residential Mobile Home | 10 units/acre | 3,750 | Multi family | 33% | 5,878 |
| Totals | | 107,320 acres | | | 302,285 pounds = 137 m tons |

Is “137 tons” OK?

- Lake TMDL is 105 tons annual inflow
- 137 tons applied on about 4% of the watershed’s area
- Applications continue annually
- This would create hotspots through the region that would get “hotter” over time—creating more “Legacy Phosphorus”
- Assimilation?

Legacy P vs. Assimilation

- Some P is “assimilated” and will not flow out
- Assimilation capacity is limited and once exhausted, P outflows increase dramatically
- Some assimilation processes are temporary, giving a false sense of effectiveness
 - e.g., P in plants is released at death
 - e.g., P on iron gets released with flooding
 - Mud in waterways moves in storms

Audubon's Urban Turf recommendations

- Emphasize no P grasses
 - Utilize existing grass like Bahiagrass, or
 - Develop cultivars with desired characteristics
- Make allowances for starter grasses and working turf
- Urban turf is one source of imported P that we can deal effectively with
- Prevention is **WAY** cheaper than clean-up

